Check List **5**(2): 202–209, 2009.
ISSN: 1809-127X

NOTES ON GEOGRAPHIC DISTRIBUTION

Amphibia, Anura, *Limnomedusa macroglossa*, *Dendropsophus anceps*, *D. berthalutzae*, *D. seniculus*, *Scinax littoralis*: new state records, distribution extension and filling gaps

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Brazil is the world leader in amphibian diversity, with 841 species (SBH 2008). However our knowledge about amphibians in Brazil is still incipient, and constantly new records of geographic distribution and description of new species are very common, even in the state of São Paulo where the amphibian fauna is historically better known (Araújo et al. 2007a; b; Brasileiro et al. 2007a; b; Thomé et al. 2007; Prado et al. 2008).

The anuran richness of state of Paraná comprises approximately 120 species of amphibians, 25 listed in some degree of threat, of which three are critically endangered, one endangered, and 21 data deficient (Mikich and Bérnils 2004). The majority of our knowledge of anurans from Paraná is from some geographic distribution notes, description of new species and a few regional surveys, remaining gaps in the geographic distribution for many species (Silva et al. 2006).

It is not surprising that there are estimates that around 10% of the anuran fauna of state of Paraná is still not described (Segalla and Langone 2004).

Ecological studies and surveys of anurans in state of Paraná are concentrated in the north, at municipality of Londrina and surroundings (Bernarde and Anjos 1999; Machado et al. 1999; Bernarde and Machado 2000), along the basin of Tibagi (Machado and Bernarde 2003), and at the southeastern portion (Lingnau et al. 2004; Conte and Machado 2005; Conte and Rossa-Feres 2006; 2007; Lingnau and Bastos 2007).

Our objective herein is to increase the knowledge about anurans of Paraná and Santa Catarina states, providing records of three species previously unknown in the State of Paraná, and increasing the geographic distribution of other two species with records from new localities in Paraná and Santa Catarina.

Check List **5**(2): 202–209, 2009.
ISSN: 1809-127X

NOTES ON GEOGRAPHIC DISTRIBUTION

Limnomedusa macroglossa (Duméril and Bibron, 1841): occurs in Argentina and Uruguay, and in all states of south Brazil. Its distribution in the state of Paraná, Brazil, appears to be associated with the median and final portions of Iguaçu River (Segalla and Langone 2004). This species is critically endangered in Paraná, because the only known populations in Paraná, at Guarani and Jordão River disappeared due to the construction of dams of the hydroelectric from *Salto Caxias* and *Segredo* (Segalla and Langone 2004). Furthermore, this species is also under "some threat" in Uruguay ("*preocupación menor*" according to Maneyro and Langone 2001). Currently, the main threat to this species in Paraná is the construction of more dams in the Jordão River, leading to extinction possible unknown populations.

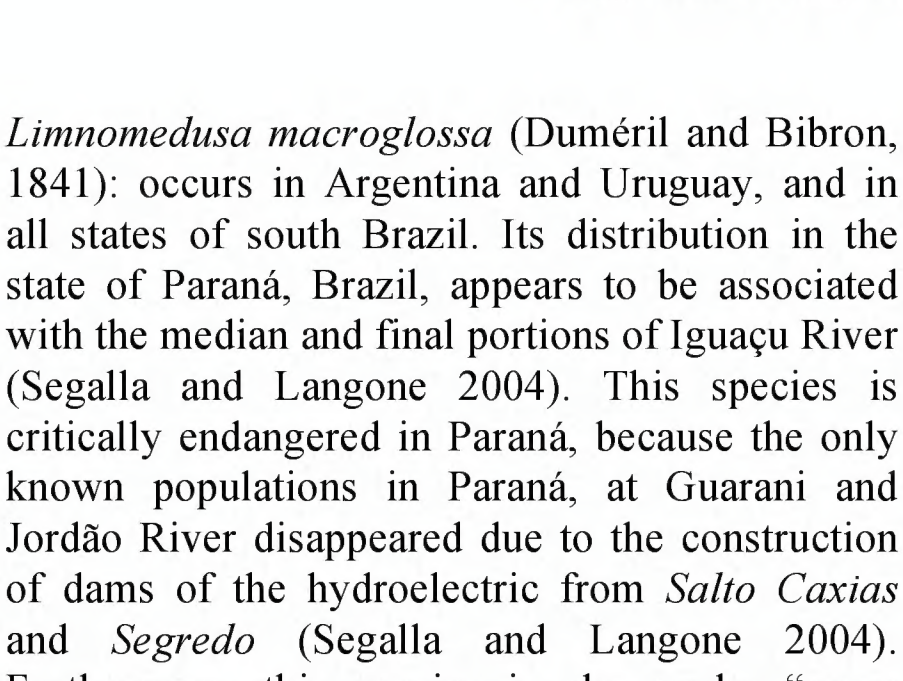

Figure 1. Male of *Limnomedusa macroglossa* from *Parque Nacional do Iguaçu.* Photos: M. X. da Silva).

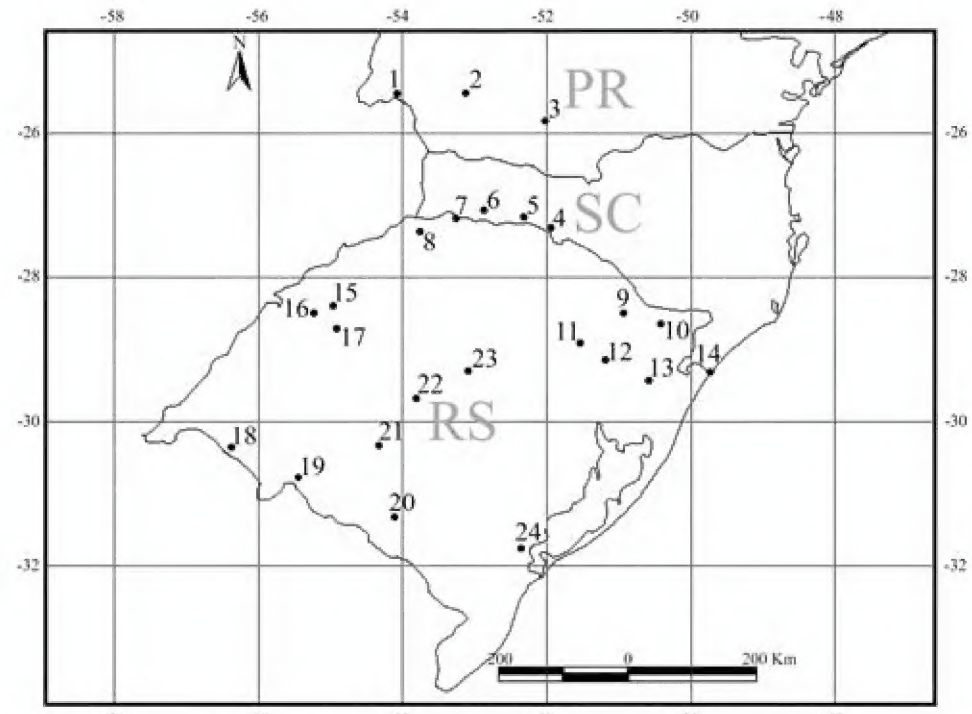

Figure 2. Map showing records for *Limnomedusa macroglossa*: 1-Foz do Iguaçu, 2-Três Barras do Paraná, 3-Reserva do Iguaçu, 4-Concórdia, 5-Itá, 6-Chapecó, 7-Iraí, 8-Tenente Portela, 9-Vacaria, 10-Bom Jesus, 11-Veranópolis 12-Caxias do Sul, 13-São Francisco de Paula, 14-Torres, 15-Luiz Gonzaga, 16-Santo Antônio das Missões, 17-Boçoroca, 18-Quaraí, 19-Santana do Livramento, 20-Bagé, 21-São Gabriel, 22-Santa Maria, 23-Arroio do Tigre, 24-Pelotas. 1,4 and 5-present study, 2-Bernarde and Machado (2000), 3-Segalla and Langone (2004), 6-Lucas and Fortes (2008), 7-22-Braun and Braun (1980), 24-Winck et al. (2006).

On 24 February 2006 between 20:00 h and 21:00 h, a male *L. macroglossa* (Figure 1) was observed vocalizing under a stone in front of a temporary puddle on right margin of Iguaçu river (25°37'38.7" S, 54°28'51.9" W). This is the third record of *L. macroglossa* in state of Paraná, and increases the geographic distribution in approximately 189 km towards western Paraná (Figure 2). Since this was the first record of *L. macroglossa* in the *Parque Nacional do Iguaçu*, the specimen was captured only for a photograph and on the next day released on the same place where it was collected. Certainly this species is present in more localities in the park, and more surveys will reveal more populations along the park.

On 17 January 2006 males of *L. macroglossa* were observed on rocks at a rivulet in forest remnants in Itá, Santa Catarina (27°10'40.4" S, 52°18'53.4" W). The area is mainly occupied by

Check List **5**(2): 202–209, 2009.
ISSN: 1809-127X

NOTES ON GEOGRAPHIC DISTRIBUTION

open areas and some factories, with this rivulet in the forest remnants. The voucher specimens are housed at the *Museu de Ciências e Tecnologia da Pontifícia Universidade Católica do Rio Grande do Sul* (MCP 8661-8665). Additionally, we found at the same collection another individual of *L. macroglossa* from Concórdia, Vale do Estreito, Santa Catarina (MCP 555). According to Kunz et al. (2007) there are 11 specimens of this species deposited in the herpetological collection of the Ecology and Zoology Department (ECZ) at the Federal University of Santa Catarina (UFSC), all collected in Santa Catarina, without more details like the municipalities where specimens were collected.

The conservation status of populations of *L. macroglossa* in Santa Catarina is unknown (IUCN et al. 2008), and so every record of new localities in Santa Catarina are very important. To our best knowledge, there is only one published record of *L. macroglossa* in Santa Catarina, from municipality of Chapecó (Lucas and Fortes 2008). In the adjacent State of Rio Grande do Sul, the species appears to be more common, with various known populations (Braun and Braun 1980).

Dendropsophus anceps (Lutz, 1929) (Figure 3): According to Frost (2007) this species occurs at lowlands of Paraná through São Paulo, Rio de Janeiro, adjacent eastern Minas Gerais, and southeastern Bahia, Brazil. Recently Gomes and Martins (2006) and Rolim et al. (2008) found this species in new localities in the State of São Paulo. This species is critically endangered in Paraná State, and the major threat to the species is the isolation of the only known population, restricted to a 100 m2 pool surrounded by plantations of Pinus sp. and *Eucalyptus* sp. (Segalla and Langone 2004).

We recorded *D. anceps* at municipality of Jacarezinho, state of Paraná, during the anuran monitoring program of the dam from hydroelectric station of Ourinhos (*UHE-Ourinhos*), which is surrounded by the municipalities of Jacarezinho and Ribeirão Claro, north of Paraná and Ourinhos, Canitar and Irapé, in São Paulo. Males of *D. anceps* were calling in January 2006 (approximately 15 males) and February 2007 (approximately 25 males). The swamp where the species was found is dominated by *taboa* vegetation (Typhaceae, *Typha* sp.), situated in the permanent preservation area (APP) in surroundings of the lake formed due to the dam of Ourinhos (23°06'28" S, 49°47'36" W). This is the second record of a population of this species in state of Paraná, 128 km away from the nearest population from Telêmaco Borba, in northwestern Paraná (Figure 4), as reported by Machado and Haddad (2001). The collected specimens are housed at the collection of Amphibia of *Departamento de Zoologia e Botânica, Universidade Estadual Paulista, campus São José do Rio Preto* (DZSJRP 10804 and 10805).

Figure 3. Lateral view of *Dendropsophus anceps,* municipality of Jacarezinho. Photo: C. E. Conte.

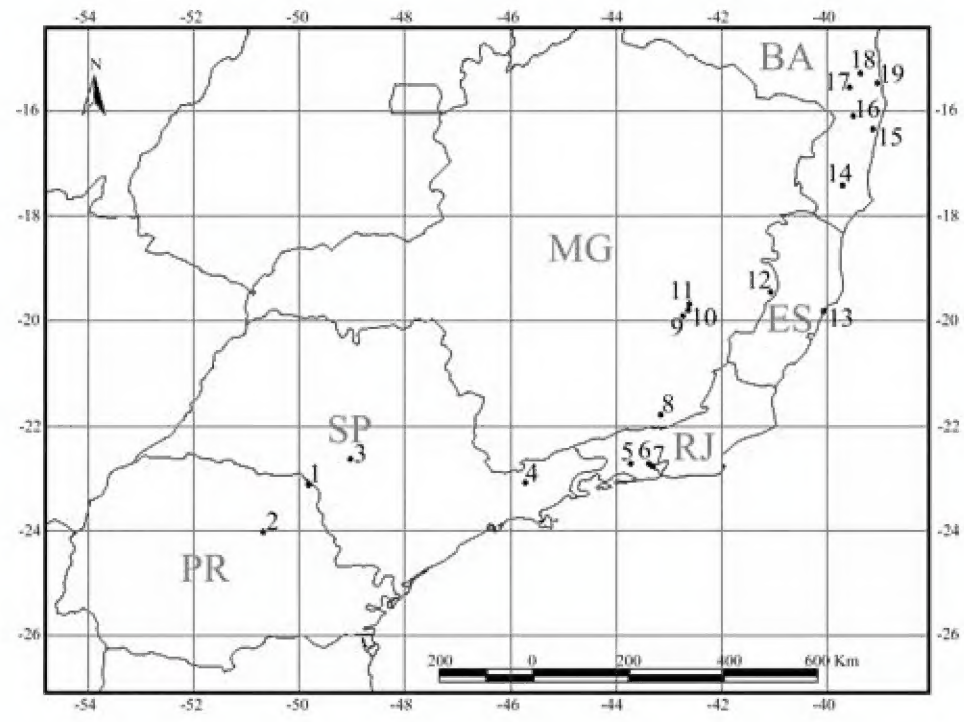

Figure 4. Map showing records for *Dendropsophus anceps*: 1-Permanent preservation area of UHE Ourinhos (Jacarezinho) 2-Telêmaco Borba, 3-Borebi, 4-Caçapava, 5-Seropédica, 6-Belford Roxo,

Check List **5**(2): 202–209, 2009.
ISSN: 1809-127X

NOTES ON GEOGRAPHIC DISTRIBUTION

7-Duque de Caxias, 8-Rio Novo, 9-Marliéria, 10-Parque Estadual Rio Doce, 11-Ipatinga, 12-Aimorés, 13-Barra do Sahy, 14-Teixeira de Freitas, 15-Porto Seguro, 16-Itapebi, 17-Pau Brasil. 18-Jussari, 19-Una. 1-present study, 2-Machado and Haddad (2001), 3-Rolim et al. (2008), 4-Gomes and Martins (2006), 5-Lutz (1973), 6-Cochran (1955), 7-type locality, Lutz (1929), 8-Feio and Ferreira (2005) 9, 11 and 12-Nascimento and Feio (1999), 10-Feio et al. (1998), 13-Haddad et al. (1995), 14, 15, 16, 18, 19 Silvano and Pimenta (2003), 17-Argôlo (2000).

Dendropsophus berthalutzae (Bokermann, 1962) (Figure 5): According to Frost (2007) this species is restricted to coastal lowlands from Espírito Santo to São Paulo, and *Serra do Mar*, São Paulo, Brazil. In a brief account on the species, Izecksohn and Carvalho-e-Silva (2001) mentioned that it occurs on coast of south and southeastern Brazil. But these authors did not cite more details about the distribution, and we do not know where in south Brazil the species occurs.

Figure 5. Dorsal view of male *Dendropsophus berthalutzae* from municipality of Guaraqueçaba. Photo: M. V. Garey.

Our first record is from municipality of Morretes, Estação II IAPAR (25°26' S, 48°52' W). One male of *Dendropsophus berthalutzae* was observed calling on herbaceous vegetation on 21 October 2004. The second record is from *Reserva Natural Salto Morato* (25°09'50" S, 48°17'40" W), Guaraqueçaba municipality. Twelve males of *D. berthalutzae* were observed calling on 12 December 2006. Vocalizing males were perched on herbaceous vegetation (0,1 to 1,5 m), always close to the margin or above aquatic vegetation in temporary ponds, in open formations and inside the forest.

This new records extend the distribution in approximately 300 km from Santos, the nearest known locality (Figure 6), as reported by Bokermann 1963. The voucher specimens are at Célio F. B. Haddad collection (CFBH 8112) and collection of *Museu de Zoologia da Universidade de São Paulo* (MZUSP 137958).

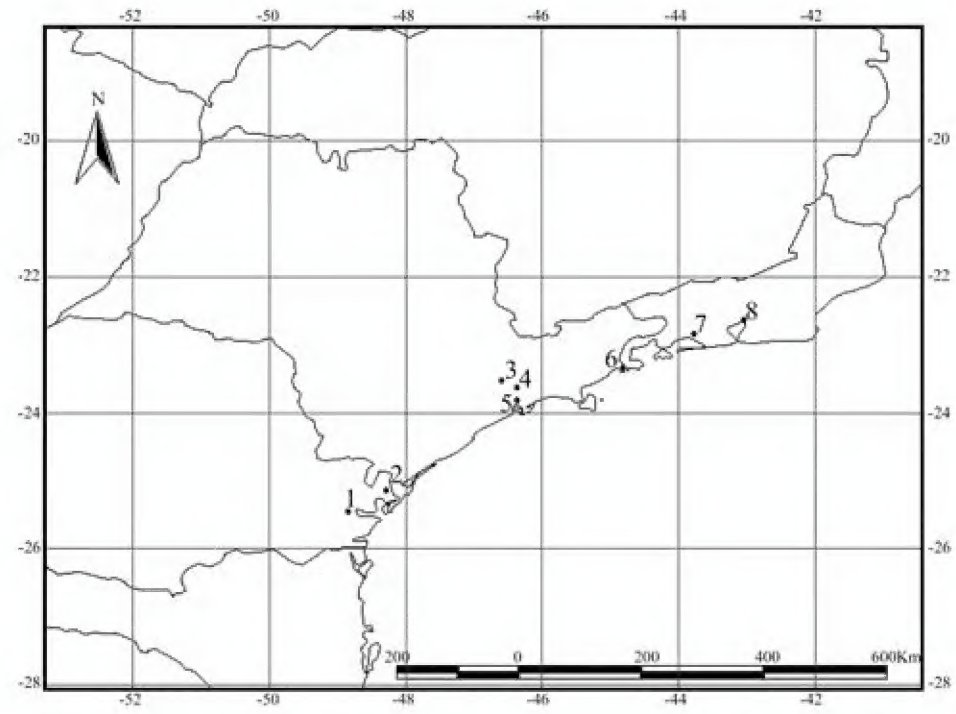

Figure 6. Map showing records for *Dendropsophus berthalutzae*: 1- Morretes, 2- Guaraqueçaba; 3- Santo André 4- Paranapiacaba, 5- Santos, 6- Ubatuba, 7- Itaguaí, 8- Magé. 1 and 2- present study, 3 - 5, 7 and 8 - Bokermann (1963), 6- M.T. Hartmann, personal communication.

Dendropsophus seniculus (Cope, 1868) (Figure 7): occurs from Porto Seguro, state of Bahia (Pimenta and Silvano 2001), until *Parque Estadual de Intervales*, Capão Bonito municipality, São Paulo State (Bertoluci 1998). The westernmost record is from *Parque Estadual do Rio Doc*e, in Minas Gerais State (Feio et al. 1998). Our first record from Paraná State was found at Reserva Natural Salto Morato (25°09'50" S, 48°17'40" W), Guaraqueçaba municipality. Approximately 30 males of *D. seniculus* were found calling in two occasions in a temporary swamp in September 2006 and January 2007.

Check List **5**(2): 202–209, 2009.
ISSN: 1809-127X

NOTES ON GEOGRAPHIC DISTRIBUTION

Males called perched between 0.4 and 1.40 m above the ground. These records extend the known range of the species approximately 125 km south from Capão Bonito municipality (Figure 8), São Paulo, as reported by Bertoluci (1998). Specimens are housed at the herpetological collection of the *Museu de Zoologia da Universidade de São Paulo* (MZUSP 137949-51).

Figure 7. Dorsal view of male *Dendropsophus seniculus* from municipality of Guaraqueçaba. Photo: D. B. Provete.

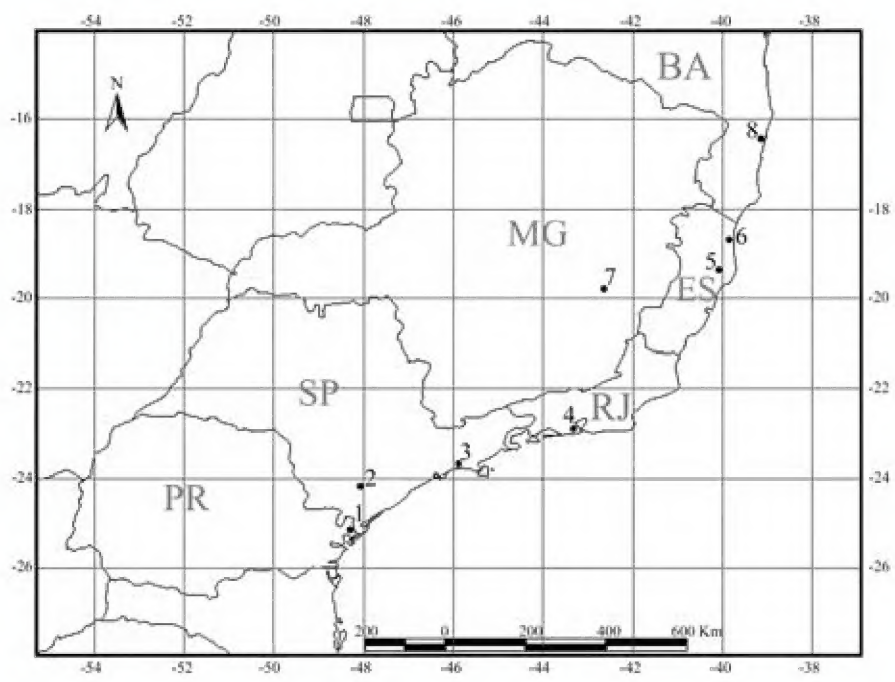

Figure 8. Map showing records for *Dendropsophus seniculus*: 1-Guaraqueçaba, 2-Parque Estadual de Intervales, 3-Estação Ecológica de Boracéia, 4-Rio de Janeiro, 5-São Mateus, 6-Linhares, 7-Parque Estadual do Rio Doce, 8-Porto Seguro. 1-present study, 2-Bertoluci (1998), 3-Heyer et al. (1990), 4-Izecksohn and Carvalho-e-Silva (2001), 5 and 6-Bokermann (1966), 7-Feio et al. (1988), 8-Pimenta and Silvano (2001).

Scinax littoralis (Pombal and Gordo, 1991) (Figures 9 and 10): assigned to the *Scinax catharinae* group, it was described from a population from *Estação Ecológica Juréia-Itatins*, in state of São Paulo, the only known locality of this species. (Pombal and Gordo 1991; Frost 2007).

Figure 9. Dorsal view of male *Scinax littoralis* from Morretes. Photo: C.E. Conte.

Figure 10. Dorsal view of male *Scinax littoralis* from Guaraqueçaba. Photo by M. A. Sacramento.

Our first record of this species is from municipality of Morretes, Condomínio Rio Sagrado (25°29'55" S, 48°50'29" W). Males of *S. littoralis* were observed vocalizing December 2002, February 2003 and from April 2003 to October 2003, with number of calling males ranging from 3 to 20 individuals. Males were observed vocalizing perched on herbaceous vegetation (0,05 to 0,40 m) always near to

Check List **5**(2): 202–209, 2009.
ISSN: 1809-127X

NOTES ON GEOGRAPHIC DISTRIBUTION

margins of streamlets. The second report is from Guaraqueçaba municipality, at *Reserva Natural Salto Morato* (25°09'50" S, 48°17'40" W). Eighteen calling males were found on 16 January 2007, on marginal vegetation of a temporary puddle. This is a first record for the state of Paraná and first record out of type-locality. These records extend the known range of the species approximately 154 km south from municipality of Iguape (Figure 10), São Paulo, as reported Pombal and Gordo (1991). The voucher specimens are housed at the herpetological collection of *Museu de História Natural Capão da Imbuia* (MHNCI 6513 to 6518) and the collection of *Museu de Zoologia da Universidade de São Paulo* (MZUSP 137947 and 137948).

Amphibian research in Paraná is very incipient, there are few surveys, which in turn increase the relevance of our records, although possible new records would be found at other localities. Although some authors say that state of Paraná would have around 120 amphibian species (Mikich et al. 2004), no complete species list is presented, and since them new species were described (Alves et al. 2006; Toledo et al. 2007; Langone et al. 2008). Investments in surveys at more localities with different survey methods would possibly increase the number of new records in the State of Paraná.

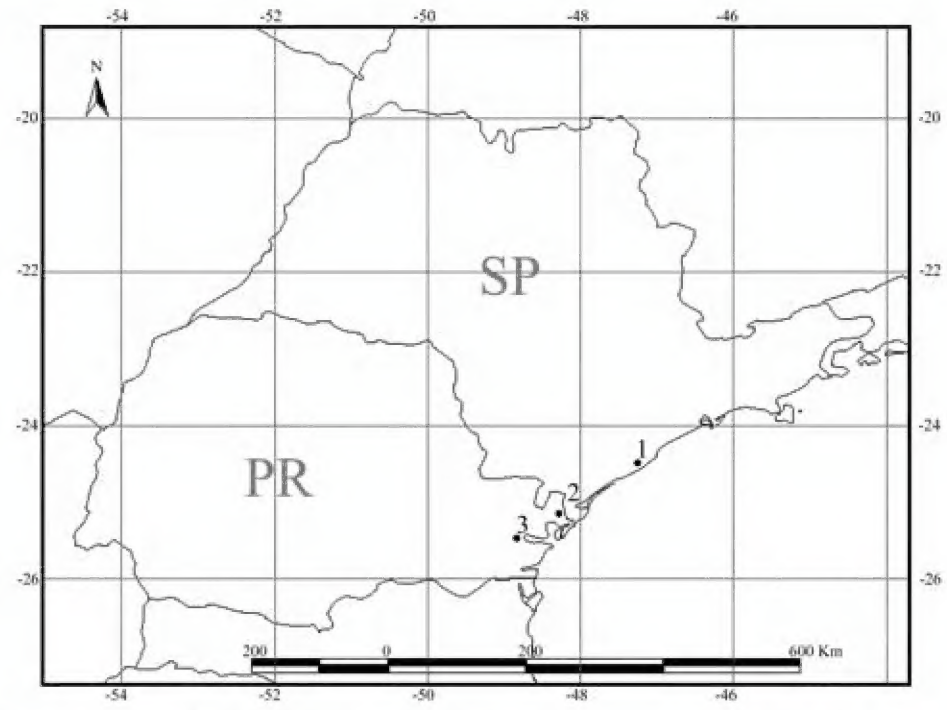

Figure 11. Map showing records for *Scinax littoralis*: 1-Estação Ecológica Juréia-Itatins; 2-Guaraqueçaba 3-Morretes. 1-type locality, Pombal Jr and Gordo (1991), 2 and 3-present study.

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